

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1       1. (Currently Amended) A cathode for an electron tube, comprising:

2           a base metal; and

3           an electron emissive material layer attached on said base metal, said electron emissive layer

4           including a surface roughness measured from a distance between a highest point and a lowest point

5           of the surface of said electron emissive material layer, being controlled to be ~~a maximum of not more~~

6           than less than or equal to 8 microns,

7           further comprised of the density of said electron emissive material layer being 2 to 5

8           mg/mm<sup>3</sup>.

1       2. (Previously Presented) The cathode of claim 1, further comprised of the surface roughness

2           distance being a maximum of not more than 5 microns.

Claim 3 (Cancelled)

1       4. (Previously Presented) The cathode of claim 1, further comprised of the thickness of the

2           electron emissive material layer being from 20 to less than 70 microns.

1       5. (Previously Presented) The cathode of claim 1, further comprised of said electron emissive  
2       material layer being attached on said base metal by one method selected from the group consisting  
3       of printing and deposition, and said electron emissive material layer having a maximum surface  
4       roughness being from 5 to 8 microns.

1       6. (Previously Presented) The cathode of claim 1, further comprised of said electron emissive  
2       material layer being attached to said base metal by a screen printing method, and said electron  
3       emissive material layer including a plurality of surface roughness values and with a maximum value  
4       of surface roughness being 5 microns.

1       7. (Currently Amended) A method of preparing the cathode for an electron tube of claim  
2       [[3]] 1, the method comprising the steps of:  
3           preparing a paste comprising 40 to 60% by weight carbonate powder, 30 to 50% by weight  
4           solvent, and 1 to 10% by weight binder, based on the total weight of said paste; and  
5           attaching said paste on said base metal using one member selected from the group consisting  
6           of screen printing, painting and roll coating.

1       8. (Previously Presented) The method of claim 7, further comprised of said solvent being  
2       one member selected from the group consisting of terpinol, butyl carbitol acetate, and a combination  
3       of terpinol and butyl carbitol acetate.

1           9. (Previously Presented) The method of claim 7, further comprised of said binder being one  
2           member selected from the group consisting of nitrocellulose and ethylcellulose.

Claims 10-17 (Cancelled)

Claims 18-32 (Cancelled)

1           33. (Previously Presented) A cathode for an electron tube, comprising:  
2           a base metal; and  
3           an electron emissive material layer attached on said base metal, said electron emissive layer  
4           including a surface roughness measured from a distance between a highest point and a lowest point  
5           of the surface of said electron emissive material layer, being controlled to be a maximum of not more  
6           than 8 microns,  
7           with said electron emissive material layer comprising of oxide particles having a uniform  
8           size.

1           34. (Previously Presented) A cathode for an electron tube, comprising:  
2           a base metal; and  
3           an electron emissive material layer attached on said base metal, said electron emissive layer  
4           including a surface roughness measured from a distance between a highest point and a lowest point

5 of the surface of said electron emissive material layer, being controlled to be a maximum of not more  
6 than 8 microns,

7 with said electron emissive material layer comprising of oxide particles having a uniform size  
8 of the pores between the oxide particles and the pores between the oxide particles being no greater  
9 than 8 microns.

1 35. (Previously Presented) A cathode for an electron tube, comprising:

2 a base metal; and

3 an electron emissive material layer attached on said base metal, said electron emissive layer  
4 including a surface roughness measured from a distance between a highest point and a lowest point  
5 of the surface of said electron emissive material layer, being controlled to be not more than 8  
6 microns,

7 with said electron emissive material layer comprising of oxide particles having the pores  
8 between the oxide particles being no greater than 8 microns.

1 36. (Previously Presented) The cathode of claim 35, with said electron emissive material  
2 layer comprising of oxide particles having the pores between the oxide particles being no greater  
3 than 5 microns.

1 37. (Previously Presented) The cathode of claim 35, further comprised of a uniform  
2 distribution of the sizes of the oxide particles and pores.

Claim 38 (Cancelled)

1       39. (Currently Amended) The cathode of claim [[3]] 1, further comprised of said electron  
2       emissive material layer being attached to said base metal by a member selected from a group  
3       consisting of printing and deposition.

1       40. (Currently Amended) The cathode of claim [[3]] 1, further comprised of said electron  
2       emissive material layer being attached to said base metal by a member selected from a group  
3       consisting of screen printing, painting and roll coating.

1       41. (Currently Amended) The cathode of claim [[3]] 1, further comprised of said electron  
2       emissive material layer being applied to said base metal by applying a predetermined pressure.

Claims 42-43 (Cancelled)

1       44. (Previously Presented) A cathode for an electron tube, comprising:  
2           an electron emissive material layer including a surface roughness measured from a distance  
3           between a highest point and a lowest point of the surface of said electron emissive material layer,  
4           being controlled to be not greater than 8 microns,  
5           further comprised of the density of said electron emissive material layer being 2 to 5

6 mg/mm<sup>3</sup>.

1 45. (Previously Presented) A cathode for an electron tube, comprising:

2 an electron emissive material layer including a surface roughness measured from a distance  
3 between a highest point and a lowest point of the surface of said electron emissive material layer,  
4 being controlled to be not greater than 8 microns,

5 with said electron emissive material layer comprising of oxide particles having the pores  
6 between the oxide particles being no greater than 8 microns.

1 46. (Previously Presented) A cathode for an electron tube, comprising:

2 an electron emissive material layer including a surface roughness measured from a distance  
3 between a highest point and a lowest point of the surface of said electron emissive material layer,  
4 being controlled to be not greater than 8 microns,

5 with said electron emissive material layer comprising of oxide particles having the pores  
6 between the oxide particles being no greater than 5 microns.

1 47. (Previously Presented) A cathode for an electron tube, comprising:

2 an electron emissive material layer including a surface roughness measured from a distance  
3 between a highest point and a lowest point of the surface of said electron emissive material layer,  
4 being limited to be a maximum of not greater than 8 microns,

5 further comprised of a uniform distribution of the sizes of the oxide particles and pores.

1       48. (Previously Presented) The cathode of claim 45, with said electron emissive material  
2       layer comprising of a carbonate powder, a solvent and a binder mixed with said carbonate powder  
3       and said solvent, the carbonate particles having a size of 5 to 7 microns being separately distributed  
4       without aggregation.

1       49. (Previously Presented) A method of the cathode for the electron tube of claim 35, said  
2       method comprising the steps of:

3               mixing carbonate powder, solvent, and binder to form a paste;

4               applying said paste on a base metal of a cathode for an electron tube to form an electron  
5       emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

6               controlling a surface roughness measured from a distance between a highest point and a  
7       lowest point of the surface of said electron emissive material layer to be less than or equal to 8  
8       microns.

1       50. (Currently Amended) A method of a cathode for an electron tube, said cathode  
2       comprising of a base metal, and an electron emissive material layer attached on said base metal, said  
3       method comprising the steps of:

4               mixing carbonate powder, solvent, and binder to form a paste;

5               applying said paste on a base metal of a cathode for an electron tube to form an electron  
6       emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

7                   controlling a surface roughness measured from a distance between a highest point and a  
8                   lowest point of the surface of said electron emissive material layer to be a maximum of not more  
9                   than 8 microns.

10                  The method of claim 10; further comprised of forming the density of said electron emissive  
11                  material layer being 2 to 5 mg/mm<sup>3</sup>.

1                  51. (Currently Amended) A method of a cathode for an electron tube, said cathode  
2                  comprising of a base metal, and an electron emissive material layer attached on said base metal, said  
3                  method comprising the steps of:

4                  mixing carbonate powder, solvent, and binder to form a paste;  
5                  applying said paste on a base metal of a cathode for an electron tube to form an electron  
6                  emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;  
7                  controlling a surface roughness measured from a distance between a highest point and a  
8                  lowest point of the surface of said electron emissive material layer to be a maximum of not more  
9                  than 8 microns.

10                 The method of claim 10; further comprising of forming said electron emissive material layer  
11                 comprising of oxide particles having the pores between the oxide particles being no greater than 8  
12                 microns.